Investigating Professional Chemical Engineers Perceptions toward Immersive Virtual Reality (IVR) in Health and Safety (H&S): Incorporating PLS-SEM and MGA methods

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Abstract (Max 250 words)

Following the rapid advancement and growing market of immersive virtual reality (IVR) nowadays, it is important to understand the impacts caused by these technological innovations in people's lives. Research on feasibility, reliability, and easiness of use of IVR has received considerable attention but little is known about the specific factors that influence the intention to adopt IVR in the health and safety (H&S) training environment. Since the success of implementing IVR in H&S training depends on the individuals who are willing to try and to use it, this paper aims to investigate the interrelationship between influential factors and behavioural intention to adopt IVR among different professional groups. To understand this, a conceptual framework was developed through adapting and modifying the Unified Theory of Acceptance and Use of Technology (UTAUT2). Data were collected using an online survey from professional chemical engineers. Partial least squares structural equation modelling (PLS-SEM) based on SmartPLS 3 was used to analyse the IVR adoption intention of the population sample and followed by multi-group analysis (MGA) method to explore the group differences in professionals' IVR adoption intention. The findings from this study are expected to contribute to the literature of the UTAUT2 model on IVR adoption intention and provide some suggestions for stakeholders in formulating appropriate strategies to improve the adoption of IVR in different group settings. (220 words)

Keywords: *Virtual Reality, UTAUT2, Technology acceptance, multi-group analysis, Health and Safety.*

Conference: The 8th European Conference on Education (ECE)

Website: https://ece.iafor.org/call-for-papers/

Abstract Deadline: 29th February 2020